IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants:	Thomas A. Dye; Manuel J. Alvarez II; Peter D. Geiger		
Assignee:	Quickshift, Inc. (f/k/a Interactive Silicon, Inc.)		
Title:	Selective Lossless, Lossy, Or No Compression Of Data Base On Address Range, Data Type, And/Or Requesting Agent (As Revised)		
Serial No.:	09/239,659	Filing Date:	1/29/99
Examiner:	Hong Chong Kim	Group Art Unit:	2187
Docket No.:	40532-P001M4P1 (f/k/a 5143-01700)	Conf. No.:	6412

Dallas, Texas
November 23, 2004

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AMENDED APPEAL BRIEF IN RESPONSE TO NOTIFICATION OF NON-COMPLIANCE WITH 37 C.F.R. 1.192(C)

Dear Sir:

Appellants submit this Amended Appeal Brief pursuant to the Notification of Non-Compliance with 37 C.F.R. 1.192(c) dated October 25, 2004 ("Notification of Non-Compliance"). Thus, this Amended Appeal Brief is due November 25, 2004. Appellants believe there is no fee due at this time. However, if Appellants have calculated incorrectly, the Commissioner is authorized to deduct any other amounts required for this Amended Appeal Brief and/or to credit any amounts overpaid to Deposit Account No. 23-2426 (40532-P001M4P1). **This Brief is submitted in triplicate.**

Pursuant to the Official Gazette Notice regarding "Clarification of the Effective Date Provision in the Rules of Practice before the Board of Patent Appeals and Interferences," a copy of

which is attached, this amended appeal brief is not required to be in compliance with § 41.37(c) since the original brief was filed prior to September 13, 2004. In particular, the notice states:

> "an amended appeal brief, based on an appeal brief originally filed prior to September 13, 2004, would be acceptable if it complies with either former § 1.192 or § 41.37(c), regardless of when the Office mailed a Notice requiring correction of the noncompliance appeal brief."

I. REAL PARTY IN INTEREST

The real party in interest is the assignee, Quickshift, Inc., as named in the caption above. Appellants have also enclosed a copy of documents filed separately but concurrently for recording a patent assignment and name change, which reflects that Quickshift, Inc. is the current assignee.

II. RELATED APPEALS AND INTERFERENCES

Based on information and belief, there are no appeals or interferences that could directly affect or be directly affected by or have a bearing on the decision by the Board of Patent Appeals in the pending appeal. However, Quickshift has appeals pending in the following applications:

Serial Numbers: 09/915,751

10/044,786

III. STATUS OF CLAIMS

Claims 1-3, 5-38, 40-46, 58-70 and 95-122 are pending in the application.

Claims 1-3, 5-25, 37, 38, 40-46, 107 and 108 are allowed.

Claims 26-36, 58-60, 67-70, 95-106 and 109-122 are rejected.

Claims 61-66 are objected to.

IV. STATUS OF AMENDMENTS

The Appellants' response and claim amendments to the Office Action dated August 1, 2002, having a mailing date of August 5, 2002, have been considered, but the Examiner indicated that they did not place the application in condition for allowance because the Appellants' arguments were deemed unpersuasive.

V. SUMMARY OF THE INVENTION

The present invention comprises a memory controller which provides improved data efficiency and bandwidth. The memory controller includes a compression/decompression engine, preferably parallel data compression and decompression slices, that are embedded into the memory control logic of the memory controller.

The present invention can selectively use different compression modes, such as lossless, lossy, or no compression. Thus, in addition to the lossless compression/decompression, the memory controller also can include one or more specific lossy compression and decompression modes for particular data formats such as image data, texture maps, digital video and digital audio. The present invention may selectively apply different compression/decompression algorithms depending on one or more of: the type of the data, the requesting agent, or a memory address range.

The present invention also accounts for overflow conditions during compression. Overflow occurs when the data being compressed actually compresses to a larger size than the original data size, or when the data compresses to a smaller size than the original data, but to a larger size than the allocated block size. The present invention handles the overflow case by first determining whether a block will overflow, and second storing an overflow indicator and overflow information with the data. The memory controller preferably generates a header stored with the data that indicates the overflow indicator and overflow information. Thus, the directory information is stored with the data,

rather than in separate tables. Compression mode information may also be stored in the header with the data. The present invention thus operates to imbed directory structures directly within the compressed data stream.

The integrated data compression/decompression capabilities of the present invention removes system bottlenecks and increases performance. This allows lower cost systems due to smaller data storage requirements and reduced bandwidth requirements. This also increases system bandwidth and hence increases system performance. Thus, the memory controller of the present invention is a significant advance over the operation of prior art memory controllers.

VI. ISSUES

A. Is claim 26 properly rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,553,160 to Dawson (hereinafter "Dawson")?

B. Are claims 31 and 35 properly rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,724,582 to Pelanek, et al. (hereinafter "Pelanek")?

C. Are claims 27-30, 95-106 and 109-122 properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Dawson in view of Pelanek?

D. Are claims 32-34 and 36 properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Pelanek in view of Dawson?

E. Are claims 58-60 and 67-70 properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Dawson in view of U.S. Patent No. 5,847,762 to Canfield, et al. (hereinafter "Canfield")?

VII. GROUPING OF THE CLAIMS

Claim 26 forms a first group.

Claims 31 and 35 form a second group.

Claims 27-30, 95-106, and 109-122 form a third group.

Claims 32-34, and 36 form a fourth group.

Claims 58-60, and 67-70 form a fifth group.

Claims 61- 66 form a sixth group.

The reasons for these groupings are set forth in Appellants' arguments in Section VIII.

VIII. ARGUMENT

A. First Group

Claim 26 was rejected under 35 U.S.C. § 102(b) in view of the Dawson patent. Claim 26 recites a system memory which stores data used by a CPU for executing one or more applications. Claim 26 also recites a memory controller coupled to the system memory which performs memory control functions for the system memory, wherein the memory controller includes a compression/decompression engine. Appellants respectfully submit that the cited Dawson patent does not teach or suggest these limitations. Rather, Dawson is directed towards compression for image data only. Dawson's teachings are not directed to compression of other data formats, such as texture maps, digital video, and digital audio, which are within the scope of Appellants' claimed invention. Furthermore, Dawson does not teach or suggest a memory controller which includes a compression/decompression engine, and which performs the operations set forth in claim 26.

The Examiner argues that Fig. 1B and Col. 8, lines 20-30 of Dawson disclose a memory controller including a compression/decompression engine. Appellants respectfully disagree with the Examiner. Fig. 1B specifically shows a compression manager 114, which includes memory

controller 150, and separate compression engines 152 and 153. Thus, Fig. 1B specifically illustrates that the compression engines are not part of the memory controller, as is required by Claim 26.

B. Second Group

Claims 31 and 35 were rejected under 35 U.S.C. § 102(b) as being anticipated by Pelanek. Pelanek relates to medical image data which is archived in a recordable optical compact disk. Pelanek teaches that the medical image data may be stored on the compact disk in two forms: losslessly compressed image data and corresponding lossy compressed image data. *See* Summary of the Invention. According to the teachings of Pelanek: "if the number of losslessly compressed digital medical images constituting a set or case study, exceeds the capacity of a single CD, an entire set of lossy compressed digital medical images will be recorded on each CD of the plurality of CDs which record the case study. Thus, the lossy data is identical on each CD, while the lossless data is appropriately split between multiple CDs." *See* Col. 4, lines 30-37.

Appellants submit that claims 31 and 35 should be allowed over the Pelanek reference because Pelanek does not teach "determining a compression mode for the data based on the one or more destination addresses" (as required by claim 31), or "determining a compression mode for the data based on the data type of the data" (as required by claim 35). Pelanek pertains only to the storage of one type of data: medical image data. Furthermore, Pelanek does not teach determining compression modes based on data type or address ranges, but instead Pelanek teaches storing lossy compressed digital medical images on each disk of a plurality of disks where the medical image data exceeds the capacity of a single disk.

C. Third Group

Claims 27-30, 95-106, and 109-122 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dawson in view of Pelanek. As is apparent from the argument below, the claims

of this group do not all stand or fall together. The following subgroups of claims in this group should be considered separately: (i) claims 27-30; (ii) claims 96-106; and (iii) claims 109-122.

Claims 27-30 should be allowed for at least the same reasons discussed above.

With regard to claim 95, this claim recites a method for compressing data which includes "allocating a memory block, wherein the memory block is allocated for uncompressed data" and further includes a step of "storing compressed first data in the allocated memory block." In other words, claim 95 recites a method of storing compressed data in a memory block that was allocated for uncompressed data. The Examiner has not cited to any teachings in either Dawson or Pelanek which disclose this feature.

Appellants also respectfully submit that the Examiner has not met the Examiner's burden of factually supporting the alleged motivation to combine Dawson and Pelanek. It is the Examiner's burden to factually support any prima facie conclusion of obviousness. The Examiner's duty may not be satisfied by engaging in impermissible hindsight; any conclusion of obviousness must be reached on the basis of facts gleaned from the prior art. The preferred evidence to be offered by the Examiner is an express teaching to modify/combine which is set forth within objectively verifiable sources of prior art. *See* MPEP §§ 2141-2144. In this case, the Examiner has not cited to any express teachings within the Dawson and Pelanek patents which support a motivation to combine these patents to achieve Appellants' claimed invention.

Claims 96-106 which are dependent on claim 95, should be allowed for at least the same reasons.

Claims 109-122 should be allowed for at least the same reasons that claims 26 and 95 should be allowed.

D. Fourth Group

Claims 32-34, and 36 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Pelanek in view of Dawson.

These claims should be allowed for at least the same reasons that claims 31 and 35 should be allowed. Furthermore, again the Examiner has not met the Examiner's burden of factually supporting the alleged motivation to combine the Dawson and Pelanek patents.

E. Fifth Group

Claims 58-60 and 67-70 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dawson in view of Canfield. As is apparent from the argument below, the claims of this group do not stand or fall together. Claim 70 should be considered separately from claims 58-60 and 67-69.

Claims 58-60 and 67-69 require the step of "determining if the first size of the compressed first data is greater than an allocated memory block size of a first allocated memory block." Appellants submit that Dawson does not teach such a step. The Examiner alleges that Fig. 4 of Dawson contains such teachings. However, Fig. 4 and the corresponding text in the specification make it clear that Dawson merely teaches determining whether the size of an image is less than a predetermined value (*e.g.*, 4k bytes). If the image size is less than 4k bytes, then the image is not compressed. Dawson does not teach, on the other hand, determining if the size of *compressed data is greater than an allocated memory block size.*

Appellants further submit that the Examiner again has not satisfied the Examiner's burden of factually supporting the alleged motivation to combine the Dawson and Canfield patents. Furthermore, the Examiner has not cited to any teachings in Canfield "wherein the header includes an overflow indicator indicating whether the first size of the compressed first data is greater than the allocated memory block size" (as set forth in claim 58). Instead, Canfield teaches a header that

contains signaling information indicating the *type* of compression that was performed on the block. *See* Col. 5, lines 29-35.

For at least these reasons, claim 58-60 and 67-69 should be allowed over the Dawson and Canfield patents.

Claim 70 should be allowed for at least the same reasons that claim 26 should be allowed. Furthermore, again the Examiner has not met the Examiner's burden of factually supporting the alleged motivation to combine the Dawson and Canfield patents. In addition, the Examiner has not cited to any teachings in Canfield "wherein the header includes compression mode information indicating the compression mode of the first data, *wherein the compression mode information indicates a decompression procedure for decompression of the compressed first data.*" (Emphasis added.) Again, Canfield discloses inserting information indicating the type of compression into a header. However, the Examiner has not cited to any teachings in Canfield wherein the header contains information indicating a decompression procedure for decompression of the compressed first data.

F. Information Disclosure Statement filed June 6, 2003

Appellants appreciate the Examiner's indication in the Notice of Non-Compliance that Appellants' Information Disclosure Statement that they filed on June 6, 2003 has been considered. Appellants also note that the Examiner has cited new art in the Notice of Non-Compliance. Since these newly cited references have not been included in any statement of rejection, these references are untimely, and are not relevant to this appeal and cannot be considered. *See* MPEP § 706.02(j).

IX. CONCLUSION

For the above reasons, Appellant respectfully submits that rejection of pending Claims 26-36, 58-60, 61-66, 67-70, 95-106, and 109-122 is unfounded. Accordingly, Appellant requests that the rejection of Claims 26-36, 58-60, 61-66, 67-70, 95-106, and 109-122 be reversed.

This Brief is submitted in triplicate.

Respectfully submitted,

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Attorney for Appellant(s)
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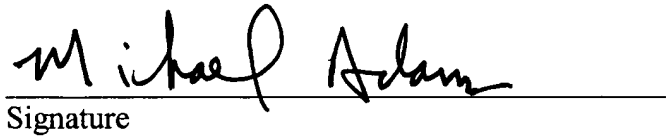
CERTIFICATION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence (along with any item referred to as being enclosed herewith) is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Mail Stop Appeal Brief - Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on November 23, 2004.



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APPENDIX

26. A computer system utilizing compressed storage of data, the computer system comprising:

a CPU;

system memory which stores data used by said CPU for executing one or more applications, wherein the system memory also stores an operating system;

a memory controller coupled to said system memory and said CPU, wherein said memory controller performs memory control functions for said system memory, wherein said memory controller includes a compression/decompression engine comprised in said memory controller for compressing and decompressing data transferred to or from said system memory;

wherein the memory controller is operable to:

receive uncompressed data;

determine a compression mode for the data, wherein the compression mode comprises one of lossless compression, lossy compression, or no compression;

selectively compress the uncompressed data, wherein said compressing is selectively performed in response to the compression mode for the data; and

store the data in the memory.

27. The computer system of claim 26,

wherein the compression mode is determined in response to one or more of: a requesting agent which provides the data; an address range where the data is stored; and/or a data type of the data.

28. The computer system of claim 26,

wherein the memory controller is operable to receive one or more destination addresses indicating a storage destination for the data in the memory;

wherein the memory controller is operable to analyze the one or more destination addresses to determine the compression mode.

29. The computer system of claim 26,

wherein the uncompressed data is received from a requesting agent; and

wherein the memory controller determines the compression mode based on the requesting agent.

30. The computer system of claim 26, wherein the data has a data type;

wherein the memory controller determines the compression mode for the data based on the data type of the data.

31. A method for compressing data and storing the compressed data in a memory in a computer system, the method comprising:

receiving uncompressed data;

receiving one or more destination addresses indicating a storage destination for the data in the memory;

determining a compression mode for the data based on the one or more destination addresses;

selectively compressing the uncompressed data, wherein said compressing is selectively performed in response to the compression mode for the data; and

storing the data in the memory at the one or more destination addresses.

32. The method of claim 31, wherein the compression mode comprises one of lossless compression, lossy compression, or no compression;

wherein, in said selectively compressing:

the data is compressed using a lossless compression format if said compression mode indicates lossless compression for the data;

the data is compressed using a lossy compression format if said compression mode indicates lossy compression for the data; and

the data is not compressed if said compression mode indicates no compression for the data.

33. A method for compressing data and storing the compressed data in a memory in a computer system, the method comprising:

receiving uncompressed data from a requesting agent;

determining a compression mode for the data based on the requesting agent;

selectively compressing the uncompressed data, wherein said compressing is selectively performed in response to the compression mode for the data; and

storing the data in the memory at the one or more destination addresses.

34. The method of claim 33, wherein the compression mode comprises one of lossless compression, lossy compression, or no compression;

wherein, in said selectively compressing:

the data is compressed using a lossless compression format if said compression mode indicates lossless compression for the data;

the data is compressed using a lossy compression format if said compression mode indicates lossy compression for the data; and

the data is not compressed if said compression mode indicates no compression for the data.

35. A method for compressing data and storing the compressed data in a memory in a computer system, the method comprising:

receiving uncompressed data, wherein the data has a data type;

determining a compression mode for the data based on the data type of the data;

selectively compressing the uncompressed data, wherein said compressing is selectively performed in response to the compression mode for the data; and

storing the data in the memory at the one or more destination addresses.

36. The method of claim 35, wherein the compression mode comprises one of lossless compression, lossy compression, or no compression;

wherein, in said selectively compressing:

the data is compressed using a lossless compression format if said compression mode indicates lossless compression for the data;

the data is compressed using a lossy compression format if said compression mode indicates lossy compression for the data; and

the data is not compressed if said compression mode indicates no compression for the data.

58. A method for compressing data and storing the compressed data in a memory in a computer system, the method comprising:

receiving uncompressed first data;

compressing the uncompressed first data to produce compressed first data, wherein said compressed first data has a first size;

determining if the first size of the compressed first data is greater than an allocated memory block size of a first allocated memory block;

creating a header, wherein the header includes an overflow indicator indicating whether the first size of the compressed first data is greater than the allocated memory block size; and

storing the compressed first data and the header in the memory.

59. The method of claim 58, wherein said determining determines that the first size of the compressed first data is less than or equal to the allocated memory block size;

wherein the overflow indicator indicates that the first allocated memory block stores all of the compressed first data.

60. The method of claim 59, wherein said overflow indicator indicates that the last symbol of the compressed first data is stored in the first allocated memory block.

61. The method of claim 58, wherein said determining determines that the first size of the compressed first data is greater than the allocated memory block size;

wherein the overflow indicator indicates that the first allocated memory block does not store all of the compressed first data;

the method further comprising:

allocating a first overflow memory block;

storing overflow information in the header, wherein the overflow information includes an overflow address pointer which points to the first overflow memory block;

wherein said storing comprises:

storing a first portion of the compressed first data and the header in the first allocated memory block; and

storing an overflow portion of the compressed first data in the first overflow memory block.

62. The method of claim 61, wherein the first overflow memory block has a fixed size.

63. The method of claim 61, further comprising:

determining whether the overflow portion has a size greater than the first overflow memory block;

creating an overflow header, wherein the overflow header includes an overflow indicator indicating whether the overflow portion has a size greater than the first overflow memory block;

wherein said storing the overflow portion includes storing the overflow portion and the overflow header in the first overflow memory block.

64. The method of claim 63, further comprising:

wherein said determining determines that the overflow portion of the compressed first data has a size greater than the first overflow memory block;

wherein the overflow indicator in the overflow header indicates that the first overflow memory block does not store all of the overflow portion;

the method further comprising:

allocating a second overflow memory block in response to determining that the overflow portion of the compressed first data is greater than the first overflow memory block;

storing overflow information in the first overflow header, wherein the overflow information includes an overflow address pointer which points to the second overflow memory block;

wherein said storing comprises:

storing a first portion of the compressed first data and the header in the first allocated memory block;

storing a first overflow portion of the compressed first data in the first overflow memory block; and

storing a second overflow portion of the compressed first data in the second overflow memory block.

65. The method of claim 58, wherein said determining determines that the first size of the compressed first data is greater than the allocated memory block size;

wherein the overflow indicator indicates that the first allocated memory block does not store all of the compressed first data;

the method further comprising:

allocating a plurality of overflow memory blocks, including a first overflow memory block and a last overflow memory block;

storing overflow information in the header, wherein the overflow information includes an overflow address pointer which points to a first overflow memory block;

wherein said storing comprises:

storing a first portion of the compressed first data and the header in the first allocated memory block; and

for each of the overflow memory blocks except the last overflow memory block, storing, in the respective overflow memory block, an overflow portion of the compressed first data and a header pointing to a subsequent overflow memory block.

66. The method of claim 58, wherein said determining determines that the first size of the compressed first data is greater than the allocated memory block size;

wherein the overflow indicator indicates that the first allocated memory block does not store all of the compressed first data;

the method further comprising:

allocating one or more overflow memory blocks, wherein the first allocated memory block and the one or more overflow memory blocks are insufficient to store the compressed first data;

generating an interrupt to a driver in response to the first allocated memory block and the one or more overflow memory blocks being insufficient to store the compressed first data;

the driver allocating additional overflow memory blocks in response to the interrupt.

67. The method of claim 58, wherein said determining determines if the first size of the compressed first data and a maximum header size are greater than the allocated memory block size.

68. The method of claim 58, further comprising:

allocating the first allocated memory block in response to receiving the uncompressed first data, wherein the first allocated memory block is allocated according to a pre-determined compression ratio.

69. The method of claim 58, wherein the computer system includes an operating system, the method further comprising:

the operating system allocating the first allocated memory block in response to receiving the uncompressed first data.

70. A computer system including a memory controller having an embedded compression/decompression engine, the computer system comprising:

a CPU;

system memory which stores data used by said CPU for executing one or more applications;

a memory controller coupled to said system memory and said CPU, wherein said memory controller performs memory control functions for said system memory, wherein said memory controller includes said compression/decompression engine comprised in said memory controller for compressing and decompressing data transferred to or from said system memory;

wherein said memory controller is operable to:

receive uncompressed first data;

selectively compress the uncompressed first data to produce compressed first data according to a compression mode;

create a header, wherein the header includes compression mode information indicating the compression mode of the first data, wherein the compression mode information indicates a decompression procedure for decompression of the compressed first data; and

store the compressed first data and the header in the memory.

95. A method for compressing data and storing the compressed data in a memory in a computer system, the method comprising:

allocating a memory block, wherein the memory block is allocated for uncompressed data;

receiving uncompressed first data;

receiving one or more destination addresses indicating a storage destination of the first data in the allocated memory block;

compressing the uncompressed first data to produce compressed first data;

storing the compressed first data in the allocated memory block at the one or more destination addresses.

96. The method of claim 95, wherein said storing does not perform address translation of the one or more destination addresses, wherein said storing provides reduced latency.

97. The method of claim 95, wherein the uncompressed first data has a first size, wherein the compressed first data has a second smaller size;

wherein said storing does not perform address translation of the one or more destination addresses, wherein said storing does not perform memory minimization.

98. The method of claim 95, wherein the computer system includes an operating system, wherein the operating system allocates the memory block for uncompressed data;

wherein the operating system does not account for the compression operation.

99. The method of claim 95, wherein the computer system includes an operating system, wherein the operating system allocates the memory block for uncompressed data;

wherein the operating system is unaware of the compression operation.

100. The method of claim 95, wherein the compressed first data occupies a first portion of the allocated memory block, the method further comprising:

allocating a portion of the allocated memory block as overflow storage.

101. The method of claim 100,

wherein the uncompressed first data comprises a plurality of blocks each having an original size, wherein one or more of the blocks compress to a larger size than the original size;

wherein said storing the compressed first data includes storing overflow data in the portion of the allocated memory block allocated as overflow storage.

102. The method of claim 95, wherein the uncompressed first data comprises application data generated by a CPU in the computer system.

103. The method of claim 95, wherein the memory comprises a system memory which stores application data generated by a CPU in the computer system.

104. The method of claim 95, further comprising

receiving a request for the first data;

decompressing the compressed first data to produce uncompressed first data;

providing the uncompressed first data in response to the request.

105. The method of claim 95, further comprising

receiving a request for the first data, wherein the request includes the one or more destination addresses in the allocated memory block where the compressed first data is stored;

accessing the compressed first data from the memory using the one or more destination addresses;

decompressing the compressed first data to produce uncompressed first data; and

providing the uncompressed first data in response to the request.

106. The method of claim 95, wherein the computer system includes a memory controller, wherein the memory controller performs said receiving uncompressed first data, said receiving one or more destination addresses, said compressing the uncompressed first data to produce compressed first data, and said storing the compressed first data.

109. A computer system utilizing compressed storage of data, the computer system comprising:

a CPU;

system memory which stores data used by said CPU for executing one or more applications, wherein the system memory also stores an operating system;

a memory controller coupled to said system memory and said CPU, wherein said memory controller performs memory control functions for said system memory, wherein said memory controller includes a compression/decompression engine comprised in said

memory controller for compressing and decompressing data transferred to or from said system memory;

wherein memory blocks are allocated in the system memory for uncompressed data;

wherein the memory controller is operable to:

receive uncompressed first data;

receive one or more destination addresses indicating a storage destination of the first data in an allocated memory block;

compress the uncompressed first data to produce compressed first data; and

store the compressed first data in the allocated memory block at the one or more destination addresses.

110. The computer system of claim 109, wherein, in storing the compressed first data, the memory controller does not perform address translation of the one or more destination addresses, wherein the memory controller provides reduced latency.

111. The computer system of claim 109, wherein the uncompressed first data has a first size, wherein the compressed first data has a second smaller size;

wherein the memory controller does not perform address translation of the one or more destination addresses, wherein the memory controller does not perform memory minimization.

112. The computer system of claim 109, wherein the computer system includes an operating system, wherein the operating system allocates the memory block for uncompressed data;

wherein the operating system does not account for the compression operation.

113. The computer system of claim 109, wherein the computer system includes an operating system, wherein the operating system allocates the memory block for uncompressed data;

wherein the operating system is unaware of the compression operation.

114. The computer system of claim 109, wherein the compressed first data occupies a first portion of the allocated memory block;

wherein the memory controller is operable to allocate a portion of the allocated memory block as overflow storage.

115. The computer system of claim 114,

wherein the uncompressed first data comprises a plurality of blocks each having an original size, wherein one or more of the blocks compress to a larger size than the original size;

wherein the memory controller is operable to store overflow data in the portion of the allocated memory block allocated as overflow storage.

116. The computer system of claim 109, wherein the uncompressed first data comprises application data generated by the CPU.

117. The computer system of claim 109, wherein the memory controller is further operable to:

receive a request for the first data;

decompress the compressed first data to produce uncompressed first data; and

provide the uncompressed first data in response to the request.

118. The computer system of claim 109, wherein the memory controller is further operable to:

receive a request for the first data, wherein the request includes the one or more destination addresses in the allocated memory block where the compressed first data is stored;

access the compressed first data from the system memory using the one or more destination addresses;

decompress the compressed first data to produce uncompressed first data; and

provide the uncompressed first data in response to the request.

119. A method for compressing data and storing the compressed data in a memory in a computer system, the method comprising:

allocating a memory block, wherein the memory block is allocated according to a pre-determined compression ratio;

receiving uncompressed first data;

receiving one or more destination addresses indicating a storage destination of the first data in the allocated memory block;

compressing the uncompressed first data to produce compressed first data; and

storing the compressed first data in the allocated memory block at the one or more destination addresses.

120. The method of claim 119, wherein said storing includes performing address translation of the one or more destination addresses, wherein said address translation minimizes memory usage.

121. The method of claim 119, wherein the computer system includes an operating system, wherein the operating system allocates the memory block for uncompressed data according to the pre-determined compression ratio.

122. The method of claim 119, wherein the uncompressed first data has a first size, wherein the compressed first data has a second smaller size;

the method further comprising:

determining if the compressed first data fits within the allocated memory block; and

allocating an overflow memory block if the compressed first data does not fit within the allocated memory block.

Clarification of the Effective Date Provision in the Rules of Practice before the Board of Patent Appeals and Interferences (Final Rule)

The effective date provision in the Rules of Practice before the Board of Patent Appeals and Interferences (Final Rule) (hereinafter BPAI final rule) states that September 13, 2004 is the effective date. See Rules of Practice Before the Board of Patent Appeals and Interferences (Final Rule), 69 Fed. Reg. 49959 (August 12, 2004). The U.S. Patent and Trademark Office (Office) has received inquiries as to how the effective date provision applies to certain situations. This notice provides clarification as to how the Office is implementing the effective date provision.

Generally, any paper filed by applicants or mailed by the Office on or after September 13, 2004 must comply with the rules as set forth in the BPAI final rule. Appeal briefs filed prior to September 13, 2004 must either comply with former § 1.192 or new § 41.37. A certificate of mailing or transmission in compliance with § 1.8 will be applicable to determine if a paper was filed prior to the effective date of September 13, 2004 in order to determine which rule applies. Examples of certain situations are set forth in the questions and answers below. Additional questions and answers concerning the BPAI final rule are available on the USPTO web site at www.uspto.gov.

Questions related to Time Periods for Filing of Papers Related to After Final Practice and *Ex Parte* Appeals:

Question 1. If a notice of appeal is filed before September 13, 2004, the effective date of the BPAI final rule, when is the appeal brief due?

If the notice of appeal is filed before September 13, 2004, the time period for filing an appeal brief will be the time period set forth in former § 1.192(a) which provides that the appellant must file an appeal brief: (1) within two months from the date of filing of the notice of appeal; or (2) within the time allowed for reply to the action from which the appeal was taken, if such time is later.

The time period set forth in former § 1.192(a) also applies if the notice of appeal is filed with a certificate of mailing or transmission in compliance with § 1.8 and the date on the certificate of mailing or transmission is before the effective date of September 13, 2004, but the notice of appeal is received by the Office on or after September 13, 2004. The two month time period will begin on the date of receipt of the notice of appeal.

Question 2. If appellant reinstates the appeal after the prosecution is reopened by filing a second notice of appeal on or after the effective date, when is the second appeal brief due?

Appellant must file the second appeal brief (in compliance with the format and content requirements of § 41.37(c)) within two months from the date of filing the second notice of appeal, even if the first notice of appeal and the first brief were filed before the effective date. The two month time period is extendable under the provisions of § 1.136 for patent applications and § 1.550(c) for *ex parte* reexamination proceedings. See § 41.37(e).

Question 3. If a notice of appeal is filed on or after the effective date of September 13, 2004, would extensions of time under § 1.136(a) be required when a Request for Continued Examination (RCE) under § 1.114 or an amendment is filed after two months from the date of filing the notice of appeal, but within three months from the mailing of the action from which the appeal was taken?

Yes, extensions of time under § 1.136(a) are required for filing an RCE or amendment after two months from the filing of the notice of appeal, even if the RCE or amendment is filed within the three months from the mailing of the action from which the appeal was taken.

Questions related to Appeal Brief Contents or Requirements for Papers Filed after Appeal:

Question 4. If the notice of appeal is filed before the effective date of September 13, 2004 and the brief is filed by appellant on or after the effective date, would the appeal brief be required to comply with the content and format requirements of § 41.37(c)?

Yes, any appeal brief filed on or after September 13, 2004 must be in compliance with the requirements set forth in § 41.37(c) and be accompanied by the appropriate fee under § 41.20(b)(2). If the brief does not comply with § 41.37(c), an amended brief will be required under § 41.37(d).

Exception: If the appeal brief is filed with a certificate of mailing or transmission under § 1.8 and the date on the certificate of mailing or transmission is before September 13, 2004, the appeal brief may comply with either former § 1.192 or new § 41.37, even if the appeal brief is received by the Office on or after September 13, 2004.

Question 5. Would the Office accept an appeal brief filed before the effective date of September 13, 2004 that is in compliance with § 41.37(c)?

Yes, a brief filed before September 13, 2004 that is compliant with the new § 41.37(c) will be acceptable.

Question 6. If an appeal brief filed before the effective date of September 13, 2004 fails to comply with the content and format requirements of § 1.192 and the Office mails appellant a Notice that correction is required, would an amended appeal brief filed on or after the effective date be required to be in compliance with § 41.37(c)?

No, an amended appeal brief, based on an appeal brief originally filed prior to September 13, 2004, would be acceptable if it complies with either former § 1.192 or § 41.37(c), regardless of when the Office mailed a Notice requiring correction of the noncompliant appeal brief.

Question 7. If, after a final rejection or an appeal, applicant or appellant filed an amendment, affidavit or other evidence on or after the effective date, will the revised or new rules in the BPAI final rule apply?

Any affidavit or other evidence filed after a final rejection, or an appeal, on or after the effective date, will be subject to the revised or new rules (*i.e.*, the revised § 1.116 or new § 41.33).

Questions related to Examiner's Answers and Supplemental Examiner's Answers:

Question 8. If the appeal brief is filed before the effective date of September 13, 2004, but the examiner's answer is mailed on or after the effective date, can the examiner's answer include a new ground of rejection?

Yes, an examiner's answer mailed on or after September 13, 2004 may include a new ground of rejection (with Technology Center Director or designee approval) in compliance with § 41.39. Any examiner's answer mailed before September 13, 2004, however, may not include a new ground of rejection. See former § 1.193.

Question 9. Can the examiner provide a supplemental examiner's answer under § 41.43 on or after the effective date of September 13, 2004 in response to any new issue raised in a reply brief that was filed before the effective date?

Yes, the examiner may provide a supplemental examiner's answer (with Technology Center Director or designee approval) if it is mailed on or after September 13, 2004 in response to any new issue raised in a reply brief, even if the reply brief was filed before September 13, 2004. Appellant may file another reply brief in compliance with § 41.41 to reply to the supplemental examiner's answer within two months from the date of mailing of the supplemental examiner's answer. Extensions of time under § 1.136(a) are not applicable to the two-month time period.

Question 10. If the Board remanded an application before the effective date of September 13, 2004 for further consideration of a rejection, and the examiner provides a supplemental examiner's answer on or after the effective date (in response to the remand by the Board), can appellant request that prosecution be reopened under § 41.50(a)(2)(i)?

No, appellant may not request that prosecution be reopened under § 41.50(a)(2)(i) in response to the supplemental examiner's answer since the Board remanded the application before the effective date. Appellant may request that prosecution be reopened in response to a supplemental examiner's answer written in response to the remand by the Board, only if: (1) the remand is on or after the effective date, and (2) the remand is for further consideration of a rejection. The Board should indicate in the remand if § 41.50(a)(2)(i) applies. Thus, appellant may not request that prosecution be reopened under § 41.50(a)(2)(i) if the remand is for another reason.

FOR FURTHER INFORMATION CONTACT: Kery Fries, Senior Legal Advisor in the Office of Patent Legal Administration, by telephone at (703) 308-6906 or (571) 272-7704 on or after September 29, 2004, or by e-mail addressed to Kery.Fries@USPTO.gov.

/s/ Robert J. Spar, for
Stephen G. Kunin
Deputy Commissioner
for Patent Examination Policy

AF/2186
IFW

PTO/SB/21 (08-03)
Approved for use through 08/30/2003. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/239,659
Filing Date	01/29/99
First Named Inventor	Thomas A. Dye
Art Unit	2186
Examiner Name	Hong Chong Kim
Total Number of Pages in This Submission: 29	Attorney Docket Number: 40532-P001M4P1 (fka 1700)

ENCLOSURES *(Check all that apply)*

- [✓] Fee Transmittal Form
  - [ ] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Response to Missing Parts/ Incomplete Application
  - [ ] Response to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] After Allowance communication to Technology Center (TC)
- [ ] Appeal Communication to Board of Appeals and Interferences
- [✓] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [✓] Other Enclosure(s) (please Identify below):
  Postcard

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Michael P. Adams, Reg. No. 34,763 Winstead Sechrest & Minick P.C.
Signature	Michael Adams
Date	November 23, 2004

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Typed or printed name	Michael P. Adams, Reg. No. 34,763		
Signature	Michael Adams	Date	November 23, 2004

PTO/SB/17 (10-03)
Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 0.00

Complete if Known	
Application Number	09/239,659
Filing Date	01/29/99
First Named Inventor	Thomas A. Dye
Examiner Name	Hong Chong Kim
Art Unit	2186
Attorney Docket No.	40532-P001M4P1 (5143-01700)

METHOD OF PAYMENT *(check all that apply)*

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☑ Deposit Account:

Deposit Account Number: 23-2426

Deposit Account Name: Winstead Sechrest & Minick P.C.

The Director is authorized to: *(check all that apply)*

☐ Charge fee(s) indicated below ☑ Credit any overpayments

☑ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($) 0.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims		Fee from below		Fee Paid
Total Claims		-20** =		X	=
Independent Claims		- 3** =		X	=
Multiple Dependent					=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0.00

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 0.00

SUBMITTED BY				(Complete *(if applicable)*)	
Name (Print/Type)	Michael P. Adams	*Registration No. (Attorney/Agent)*	34,763	*Telephone*	512.370.2858
Signature	Michael P. Adams			*Date*	November 23, 2004

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This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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